W5YI

America's Oldest Ham Radio Newsletter

REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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In This Issue...

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Ultra-Wideband – Blessing or Interference Blight?

A novel technology, low power, ultra-wideband (UWB) radio, uses monocyclic (single cycle) waveforms and can convey data by varying the timing of pulses (so-called "time modulation"). The resulting emissions are essentially low-level noise distributed across gigahertz of spectrum.

UWB can leap across many spectrum allocations, which presents some challenges for the FCC's traditional band-by-band regulation. "This represents such a paradigm shift that it makes spread spectrum seem like conventional technology," according to Dewayne Hendricks, WA8DZP of WarpSpeed Imagineering, one of several UWB proponents.

UWB is said to offer privacy, low likelihood of interference, low cost, high capacity, and the power to make extremely precise measurements of distance. UWB radar can apparently display the positions of individuals inside a building and identify if they are breathing or carrying weapons. It can tell if an intruder is a "cat burglar or just a cat," according to UWB developer Larry Fullerton of Time Domain Corp., another company investing heavily in the technology. And UWB communications are supposed to be undetectable by ordinary receivers or instruments.

"Ultra-wideband low power time modulated communications can prove beneficial in a host of applications that require relatively short range, large data capacity, a high degree of immunity to the adverse effects of multipath, and a low probability of unauthorized detection and interception," according to Time Domain. "Broader uses of the technology in applications such as wireless LANs for commercial, educational, and medical applications may prove to be quite feasible."

Depressed Dogs

Besides undetectable communications, a valuable application of UWB radar is detection of victims trapped under debris in disasters or explosions. Rescuers use trained dogs to detect survivors in these emergencies. But dogs may become depressed and stop working if they encounter many casualties. When this happens, live persons must bury themselves in rubble in order to get the dogs interested in searching again. UWB radar can operate where dogs can't or won't work.

An industry UWB Working Group was formed to represent UWB developers. "Many potential applications of UWB technologies are not feasible today because the regulatory structure does not accommodate bandwidths that may involve 1 GHz or more of spectrum at low frequencies," the group told the FCC. It recommended that UWB be regulated under Part 15 of the FCC rules for unlicensed low power devices.

In response, the FCC issued a *Notice of Inquiry* (NOI) in ET Docket 98-153, asking industry to provide examples of UWB products and to explain

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how incumbent spectrum users can be protected from interference. The NOI, issued last September, claimed that the FCC only "recently" learned of advances in UWB. We found, however, that inventors had been pleading with the FCC to authorize UWB since 1991.

The NOI attracted numerous filings, for and against the new technology. "The covert nature of UWB signals makes this transmission method attractive to the medical records industry which is extremely sensitive to the privacy of patient records," according to Pulson Medical Inc. "Conventional radio functions inadequately due to multipath. This attribute alone ([UWB's] multipath immunity) is enough to recommend UWB for the high multipath environment of hospitals," the company added.

"We applaud the Commission's initiative and initial efforts at developing regulations for UWB technology," said Xtreme Spectrum Inc. "UWB modulation techniques are necessary for communication and radar systems that must operate in opaque, lossy, inhomogeneous media and that simultaneously require high resolution. UWB is a unique asset that can simultaneously penetrate materials and resolve reflections. This enables foliage and ground penetration radar and wireless communications in buildings, urban and suburban environments and foliage to be realized."

Not everyone was enthusiastic, however. The American Radio Relay League (ARRL) commented that "Amateurs use extremely sensitive receivers. Recent changes in Commission rules regarding use of spread spectrum techniques in the Amateur Service are starting to produce significant use of those emissions. It would be premature to allow new, Part 15 UWB signals in the amateur bands just as this technology is starting to take hold in the Amateur Service. ...

"The League concluded that interference from UWB devices on amateur frequencies could substantially degrade certain amateur operations in allocated bands, especially between 222 and 450 MHz. Furthermore, these devices are difficult to identify by standard direction-finding techniques."

ARRL described approaches that might limit UWB emissions to bands outside amateur allocations, but said that "It is not clear...whether any filtering or notching of UWB devices to exclude amateur, television broadcast, or restricted band operation is practically feasible."

Power of a lightning strike

"As a clear example of the interference potential of UWB systems," commented Broadband Telecom Systems, "a UWB transmission system can be built with the following characteristics1 milliwatt of total average radiated power, 1 nanosecond pulse width, 10 kHz repeat rate.

"This system would radiate over a full 1 GHz of bandwidth, with the power per unit hertz bandwidth in the picowatts, which is apparently benign. However, the individual pulses have 100 Joules of energy – comparable to the energy absorbed by an antenna from a direct lightning strike. Broadband systems exposed to energy pulses such as these could easily be destroyed or face serious degradation in performance due to amplifier saturation in the front end," the company said.

"Clearly, it would be inconsistent with the fundamental tenets of the Commission's... policies regarding Part 15 devices if the Commission were to amend its rules to accommodate the provision of unlicensed UWB radio systems, knowing that such systems can cause harmful interference within restricted bands and the TV broadcast bands," according to the *Consumer Electronics Manufacturers Association* and the *National Association of Broadcasters.*

Representatives of Global Positioning System (GPS) equipment makers and users argued that "There is no question that UWB operations would increase the background noise in a given spectrum. ...Increases in background noise in the GPS frequency bands may reduce the ability of the GPS receiver to acquire a GPS signal or even to maintain tracking of a GPS signal, or cause errors in position or time accuracy. Any of these consequences is intolerable for a safety-of-life service such as GPS."

Interference to aviation claimed

UWB will cause "interference to critical aeronautical safety systems," according to the Federal Aviation Administration (FAA). The agency was especially concerned about UWB radiation in the "restricted bands" in which FCC Part 15 rules permit unlicensed devices to emit only very low level emissions.

"The FAA is opposed to any authorization of licensed or unlicensed UWB systems to intentionally radiate in these bands. It is likely that authorizing even limited operation of such systems will lead to further proliferation of UWB systems as new applications for their use are developed. ...

"The FAA has documented cases of radio frequency interference caused to such [aeronautical] services from non-licensed low power devices such as television antenna amplifiers, baby monitors, personal computers, and UWB operations. In each case, these incidents caused disruption to air traffic flow within the United States."

The mysterious Interval Research Corp., established by Microsoft Corp. co-founder Paul Allen, evidenced a strong interest in UWB and filed extensive replies to others' comments at the FCC. "The Commission must not let UWB be stifled by sheer speculation that UWB will cause harmful interference," Interval said. "In fact...any interference caused by UWB devices is not likely to be any greater than the interference presently caused by the

many unintentional radiators currently operating under Part 15 of the Commission's rules. ...It would be unreasonable to prohibit UWB devices from emitting at the same levels as unintentional radiators in any frequency band, restricted or not."

NEW CB SERVICE FOR PACEMAKERS

At the request of Medtronic, a medical device manufacturer, the FCC on February 24 proposed to allocate 402-405 MHz to a Medical Implant Communications Service (MICS), "an ultra low power radio service for the transmission of non-voice data for the purpose of facilitating diagnostic and/or therapeutic functions involving implanted medical devices" (Wireless Telecommunications Docket 99-66).

The FCC noted that at least 75,000 pacemakers are implanted in new patients each year, and that new devices are being developed that help with heart disease, Parkinson's disease and cerebral palsy.

These devices implanted in the body would use MICS to communicate a short distance to external programming and monitoring equipment. This would improve over current methods, which use wired connections or inductive coupling rather than radio links. These current methods can't support high data rates and are sensitive to interruption caused by patient or device movement.

.Medtronic claimed that 402-405 MHz is a suitable band because of favorable signal propagation through the human body, constraints on size and power consumption of implants, low environmental radio noise and international frequency compatibility.

This band appears to be the only suitable spectrum that can support 3 MHz of bandwidth for MICS worldwide, the company said.

This band is used by Meteorological Aids, including radiosondes, rocketsondes and wind profilers that are used to gather weather information. Ordinarily, we would expect these "Met Aids" users to object to possible interference from any new type of devices in the Met Aids spectrum. However, the International Telecommunication Union already has issued a Recommendation on sharing between Met Aids and MICS.

The Recommendation found that sharing between the two services is feasible if the EIRP of MICS transmitters is limited to 25 microwatts. This is the power level the FCC has proposed for MICS in the U.S.

Even so, the FCC proposed to add a Non-Government footnote to the U.S. Table of Allocations to make clear that MICS operation can't be allowed to interfere with Meteorological Aids services.

No MICS license documents would be issued, but MICS would not be considered an "unlicensed device" like cordless telephones or radio controlled toys. Instead, MICS would be "authorized by rule" as one of the Citizens Band Radio Services, regulated under Part 95H of the FCC Rules.

MICS has nothing to do with CB Radio. But a loophole in the Communications Act permits the FCC to authorize CB services by rule --that is, to simply decide that a particular service needs no licenses.

The CB Radio Services are now a catchall category for services that do not issue license documents--a way around the Act's policy that no station shall transmit without a license.

However, not everyone would be authorized to transmit in the MICS service. Only "duly authorized health care professionals" who do not represent foreign governments may operate MICS transmitters.

Replies are due April 26, 1999. The NPRM was issued Feb. 24.

K-BAND SAFETY SERVICE APPROVED!

On February 19, the FCC authorized a controversial Safety Warning System (SWS), to provide in-vehicle warning of road hazards. SWS transmits alerts at 24.1 GHz to consumer receivers, including radar detectors.

Fixed SWS transmitters are expected to be installed at construction sites, flooded areas and other hazardous places, while mobile SWS transmitters can be mounted on emergency vehicles. In this application, the transmitter illuminates the receiver from behind, alerting the motorist to an approaching vehicle.

After receiving a petition from the *Radio Association for Defending Airwave Rights* (RADAR, a radar detector advocacy outfit), the FCC decided to allocate 24.1 GHz to SWS and to permit public safety agencies and railroads to broadcast safety alerting signals on this frequency.

FCC bucks opponents

In taking this action, the Commission bucked some high-profile SWS opponents, including the *U.S. Department of Transportation* (DOT), the *International Association of Chiefs of Police* (IACP) and the *National Association of Governors' Highway Safety Representatives* (NAGHSR).

DOT griped that SWS is "unlikely to enhance the safety of motorists, and undercuts that safety by promoting the widespread deployment of a device whose primary use is to facilitate unlawful speeds without detection."

"These devices, when not receiving emergency notification of road hazards and approaching emergency vehicles, will be used to alert the driver of speed enforcement activities of police," the IACP said. NAGHSR

argued that SWS "is a way to legitimize the use of radar detectors by motorists" and claimed that more sophisticated driver alerting systems are being developed with "millions of Federal dollars."

In response, the FCC pointed to the millions of Federal dollars being spent on SWS. The federal Transportation Equity Act for the 21st Century (TEA-21) earmarked $2.1 million over the next three years to study the effectiveness of the SWS.

In a bizarre disconnection, this money – which is supposed to help state and local governments purchase and evaluate SWS equipment – is to be administered by DOT, one of the agencies fighting SWS at the FCC.

Radar detector or not?

RADAR said that SWS works with more than 20 million "early-generation safety warning system receivers...already in use by consumers" which are "basically radar detectors." Current and future SWS products "will not incorporate the circuitry required for the device to function as a radar detector," however. Radar detectors are not allowed by law in some areas such as Virginia and the District of Columbia, and federal law bans radar detectors in interstate commercial vehicle operations.

The FCC said that SWS "will provide immediate benefits without the motoring public having to wait possibly 10-15 years for the development and implementation of future ITS (Intelligent Transportation Systems) technology." It added railroad companies to the group of licensees eligible to transmit SWS signals, in a program to reduce the high number of accidents that occur at rail crossings.

How it works

The SWS transmitter uses binary coded FM to send a preamble followed by an index number that corresponds to one of the 64 hazard messages pre-programmed in the memory of SWS receivers. The messages are organized into five different categories: 1) Highway Construction or Maintenance; 2) Highway Hazard Zone Advisory; 3) Weather-Related Hazards; 4) Travel Information/Convenience; and 5) Fast/Slow-Moving Vehicles.

Typical messages are: Work Zone, Emergency Vehicle Approaching, Accident Ahead and Train At Crossing. Customized messages can also be sent. Mobile SWS transmitters start transmitting when the emergency vehicle light bar is activated.

Receivers made after 1996 alert the driver with an audible alarm followed by an LED display as either a single SWS indicator light or a complete textual message. Some receivers even include a synthesized voice announcement. Some six million of these SWS-enhanced receivers have already been sold. Receivers made before 1996 respond to SWS signals in the same way that they respond to police radar.

In 1996 a consortium of radar detector manufacturers, headed by longtime radar detector advocate Janice Lee, established Safety Warning System L.C. to promote the technology.

This company has licensed SWS receiver technology to BEL-Tronics, SK Global America, Escort, Star Dreams, Santeca Electronics, Uniden America Corp., Whistler Corp. and Yupiteru Industries Co. The transmitters are made by MPH Industries, Inc. a traffic radar manufacturer. The SWS website is http//www.swslc.com.

AMATEUR RADIO STATION CALL SIGNS

...sequentially issued as of the first of March 1, 1999:

Radio District	Group A Extra	Group B Advanced	Group C Tech/Gen.	Group D Novice
0 (*)	AB0IJ	KI0PK	(***)	KC0FBU
1 (*)	AA1UI	KE1KZ	(***)	KB1DSM
2 (*)	AB2GA	KG2QA	(***)	KC2ESG
3 (*)	AA3SE	KF3CO	(***)	KB3DLO
4 (*)	AF4NH	KU4YN	(***)	KG4CDR
5 (*)	AC5SG	KM5UL	(***)	KD5GLP
6 (*)	AD6HY	KQ6ZQ	(***)	KF6VBR
7 (*)	AC7AN	KK7SF	(***)	KD7EHA
8 (*)	AB8DT	KI8HT	(***)	KC8LVJ
9 (*)	AA9WX	KG9PG	(***)	KB9UFG
N. Mariana	NH0K	AH0BC	KH0HW	WH0ABK
Guam	(**)	AH2DK	KH2UC	WH2ANX
Hawaii	NH7X	AH6PS	KH7RT	WH6DFJ
Am.Samoa	AH8R	AH8AH	KH8DM	WH8ABG
Alaska	AL0N	AL7RI	KL0SI	WL7CVA
Virgin Isl.	(**)	KP2CP	NP2KJ	WP2AIK
Puerto Rico	NP3Z	KP3BM	NP3ZZ	WP4NOM

* = All 1-by-2 & 2-by-1 Group "A" call signs allocated. Group "A": 2-by-2 format call signs now being assigned.

** = All 2-by-1 call signs have been assigned.

***= Group "C" (N-by-3) call signs have now run out in all call districts. Group "D" (2-by-3) format call signs are now being assigned

Note: New prefix numerals now being assigned in Puerto Rico (KP3/NP3), Hawaii (AH7/KH7) and Alaska (AL0/KL0)

[Source: FCC Amateur Service Database, Washington, DC]

NEW AND UPGRADING AMATEUR STATISTICS

For the Month of February 1997, 1998 & 1999

License Class	New Amateurs 1997	1998	1999	Upgrading Amateurs 1997	1998	1999
Novice	100	54	60	0	0	0
Technician	1955	943	1168	1	39	1
Tech Plus	200	122	109	399	264	300
General	29	27	17	354	253	233
Advanced	7	1	0	294	209	241
Extra Class	11	3	1	231	109	116
Total:	**2302**	**1150**	**100**	**1279**	**874**	**000**
Decrease:	**+7.2%**	**(50%)**	**+18%**	**(6.3%)**	**(32%)**	**+1.9%**

CUTTING EDGE TECHNOLOGY

■ **Telephone operators are going the way of the elevator operator.** There will be less and less of them in the future. IBM has unveiled a new product that essentially eliminates them. IBM's ViaVoice Directory Dialer, automates call routing through speech recognition technology. Instead of talking to an operator, callers can tell ViaVoice the person they are looking for, and the system connects them through its new Natural Language Recognition Technology, which allows humans at one end of a telephone conversation to speak to a computer at the other end as if it were a person. More at: <http://www.-ibm.com/viavoice/telephony>

■ **Panasonic's LF-D101 DVD-RAM drive turns a rewritable DVD** into a 5 GB storage device for your computer. It also reads CD-ROMs and plays video and audio from an ordinary DVD. A blank disc costs about $40 and can archive an entire hard drive.

■ **No one likes the phone to ring at 4 a.m.** About 400 residents of Fort Worth, TX were awakened by telephone calls before dawn one Sunday morning in February when the local Police Department's computer malfunctioned and dialed 1,300 numbers. The automated system normally dispatches recorded messages between 9 a.m. and 9 p.m. The message invited citizens to an upcoming neighborhood police meeting. Chances are they'll talk about a great deal more than just crime!

■ **Computer graphics programmers employ toolboxes full of tricks** to increase their output. One scheme involves "bypassing" certain areas of the screen. That is, if an object is hidden behind another, there is no need to draw it and therefore no need to tie up computer time calculating its display.

■ **Automotive manufacturers claim that their #1 warranty problem** comes from electrical connectors.

■ **The aviation industry is working hard on developing more routes over the North Pole.** While this shaves hours off transit time, there are few ground radio links in that part of the world. Most satellite links can't reach the far northern or far southern latitudes.

■ **Voice-recognition technology continues to get better.** At least one major airline is installing a dial-in flight information system that uses no time-consuming automated selection menu; all you have to do is say where you will be leaving from and where you want to go, and when. The automated system then returns with your flight status. This saves time for consumers and money for companies because such systems can work around the clock.

■ **A British company, DisplayMate, now offers the largest touch screen in the world.** It uses a rear-projection video display system and a resistance network to track finger or pointer movements. It measures 100 inches diagonally. DisplayMate is targeting exhibitions and corporate conference rooms.

■ **Working on the rig?** Bourns offers a combination flashlight/screwdriver so you don't need three hands. Its xenon bulb easily illuminates the darkest workspaces. It comes with extra tips and colored lens filters.

■ **The Y2K problem is said to be the second most expensive emergency in U.S history.** One study suggests more than a trillion lines of code in over 500 different computer languages are being modified (or should be). What was the most expensive problem? World War II.

■ **Veridicom manufactures a capacitive sensor to examine fingerprints** at computer terminals. It looks at a fingertip and determines the various thicknesses of loops and whorls in the skin. It stores that unique pattern in a small file, which can be referred to again and again when someone wishes access to a sensitive computer system.

■ **Can't go to the lab? Take the lab with you.** An Olympus digital microscope can store over 500 magnified images in its internal memory, which you can download into your desktop computer when you get back. The field-portable DVM-1 comes with a variety of lenses, can operate from AC or battery power, and can be used with a fiberscope to look into areas not directly visible.

■ **Electronics manufacturers use solder balls to attach the latest integrated circuits to printed-circuit boards.** These ICs don't have pins, so to speak, just land areas that must be electrically "glued" to the board pads. A manufacturer places tiny balls of solder onto the land areas, delicately places the chip on top, and heats the entire system so the balls melt and fuse the chip to the board.

■ **Making spherical balls of solder on a large scale is easier than you might think.** Simply drop a small blob of solder through a bath of hot oil. As it descends, the ball cools and hardens. Then clean it and package it. This technique is very similar to the way bullets were made, as far back as before the Civil War. A "shot tower," up to a couple of hundred feet tall, dropped molten lead through a sieve at the top of the tower into a tank of water at the bottom. This technique created spherical bullets.

■ **Microcontrollers and custom integrated circuits have eliminated a great many discrete potentiometers.** In fact, many manufacturers have quit the business due to lack of demand. Think about it. Most consumer electronics devices require button-pushing rather than the turning of knobs.

■ **Fuse panels are more dangerous than circuit-breaker panels.** Why? Because it's so much easier to replace a fuse with the wrong value than it is to simply reset a breaker. Also, if there's a dead short on the output, a fuse could possibly explode.

■ **We usually see heat sinks only on transistors and ICs.** Well, electrolytic capacitors can get hot, too. If they can't get rid of their heat effectively, they will eventually fail. Aavid now offers heat sinks designed for large filter capacitors.

■ **Sandia National Laboratories has developed a novel method of keeping semiconductors cool.** They build micro "heat pipes" directly into the substrate material of the integrated circuit, allowing liquid coolant to carry away generated heat. Just a few drops of coolant is all it takes.

■ **BALL Semiconductor has successfully built a working transistor** on the surface of a one-millimeter silicon sphere. Since the shortest distance between two points is a straight line, BALL hopes to make integrated circuits operate at even faster speeds.

■ **EigenLight Corporation makes a series of in-line devices for fiber-optic cables** that let you see exactly how much optical power is going through the line. A liquid-crystal display shows numerically the

amount of power or return loss. One model even allows you to adjust the attenuation and see how the optical power level changes.

■ **If you've ever tried to find a fault in your coax cable,** you can understand how frustrating it can be. Power companies look for shorts in electrical grids by isolating a particular trouble spot. If the short is underground, technicians can remove an individual cable and hook up a special kind of time-domain reflectometer (TDR) to find the exact spot of the problem.

■ **Electrically conductive adhesives are seriously being examined** by electronics manufacturers as a lead-free alternative to soldering. Not only does it remove risk from personnel, it also allows connections to non-solderable surfaces such as plastic and glass. A typical electrical adhesive recipe contains an epoxy resin, which bears the mechanical strain, and a mixture of conductive particles (usually silver) to provide the electrical link. Curiously, electrical adhesives are meant to be kept cold, rather then heated. To keep the mixture from reacting, it must be kept frozen while in storage.

COMPUTERS & SOFTWARE

■ **Judgment day is looming for Microsoft as the technology trial of the century** winds down to a conclusion. The U.S. Justice Department and 19 states say that Microsoft illegally used its PC operating system monopoly to preserve that monopoly power and extend it to other areas. The heart of the trial is whether Microsoft can legally bundle its Internet Explorer browser (IE), with its Windows operating system.

Microsoft has badly botched some of its "evidence"during the trial and the company's image has been seriously tarnished. It suffered a credibility blow by releasing three botched videos which made their evidence appear manipulated.

Several other company heads have claimed Microsoft forced them into making pro-IE, anti-Netscape deals as a condition of doing business. For example, the government has charged that Microsoft sent a threatening letter to Compaq warning that its license to use the Windows operating system would be canceled unless Compaq reduced the prominence of rival browsers.

And internal Microsoft e-mails have implied a number of questionable practices took place, even to the extent of adding programming to their products that disable competing products.

The Department of Justice has offered convincing evidence – especially Microsoft chairman Bill Gates's own testimony and e-mails – that the software company routinely engaged in strong-arm tactics to try to squash competition and control various markets.

The Sherman Antitrust Act created more than a hundred years ago seeks to prevent any one company from using a "stranglehold" monopoly to eliminate or stifle competition in a market or related markets. The Department of Justice says there is persuasive evidence that Microsoft has violated the act by illegally gaining control of the computer operating system market, and then, using that control to try to dominate a peripheral market, that of Internet browser software.

Few people dispute that Microsoft holds an operating system monopoly since some 90 per cent of the world's computers run on some version of Windows. It is not illegal for a single company to have a monopoly in its market. What is illegal is to use that monopoly to gain an unfair advantage over competition.

The DOJ has produced many technology experts that say Microsoft has used its control of computer "desktops" to give its browser, Internet Explorer (IE) an advantage over the former leader, Netscape's browser Navigator. The desktop is the first screen that a user normally sees when the computer is switched on. The DOJ maintains that Microsoft initiated many "deals" to give the Internet Explorer a featured spot on the desktop and to banish or downgrade Navigator.

Microsoft believes its practices are entirely legal and pointed to mega-mergers such as the one between Netscape, America Online and Sun which occurred mid-trial. Microsoft said the high-tech playing field changes so quickly that at any moment, unforeseen rivals could displace it.

Judge Penfield Jackson will take a recess of about a month before returning for final arguments and deliberations in April. He could require that the company be closely monitored - an option believed unlikely since it requires ongoing surveillance - or Microsoft could be restructured.

One suggestion is to split it into a number of "Baby Bills" - smaller separate companies, each of which would be entitled to parts of Microsoft's intellectual property. The name comes from the "Baby Bells" which resulted after AT&T was split up in 1984 following another antitrust suit.

Or, the company could be divided in two - into a company focused on the Windows operating system and another which would produce software applications such as Word, Office, and Excel. Another option would be to release the source code for Windows which would enable anyone to create products for it or modify it.

■ **Linux is a free operating system for computers** which lately has skyrocketed in popularity. So much so, that Microsoft now considers it a threat to its Windows NT operating system. IBM is the latest to announce business computers pre-loaded with Linux for tasks such as running networks of smaller computers. Compaq Computer Corp., Dell Computer Corp. and Hewlett-Packard Co. also sell Linux-based PC's.

Users praise Linux's flexibility and anti-crash capability. Linux was developed a few years ago by Linus Torvalds, a Finnish student and can be downloaded for free off the Internet. Linux's source code is shared over the Web, which makes it easy for programmers to cooperate on improvements. Corel Corp., even said it plans to offer a package of business software, including "Word Perfect for Linux."

■ **Internet surfing in secrecy could become a bit more difficult.** Intel's next generation microprocessor chip, the Pentium III, has a feature that privacy advocates are up in arms about. The chip is just now hitting PC makers.

The P3 has an electronic ID feature which can be read by websites as a user visits them. The imbedded serial number could allow banks, for example, to verify users during online banking sessions. It could also help prevent theft, since each computer could be identified as soon as it accessed the Web.

The American Civil Liberties Union (ACLU), is now involved and they want the chip recalled and the processor ID feature withdrawn.

Privacy advocates have already gained one concession from Intel. The P3 will be shipped with its initial default ID switched to the "off" position. It must be activated by either the computer manufacturers putting the chips into their machines, or by users during set-up.

But the ACLU is not satisfied. They believe that many Websites will demand

the number and that consumers will be pressured into turning the serial number feature on. And at least one Arizona legislator has proposed banning the new Intel chip.

Intel guarantees on its website that it: "...will not track or correlate which processor serial numbers go to which consumers, nor will Intel entertain any offers to develop such a list." But that does not prevent website owners compiling lists of their own.

Except for an 11% increase in speed (500 MHz vs. 450) and a few digital audio and video processing, security and memory improvements, the P3 is basically the same as the P2. Analysts expect AMD next-generation K-7 to outperform the P3 at less cost. Release of the K-7 is expected in June.

■ **But Intel Corp. did demonstrate a Pentium III chip running faster than 1 gigahertz, last week** – the first time a standard microprocessor has broken that speed barrier. The chip is more than twice as fast as the Pentium III released on February 28th.

■ **While many people are justifiably concerned about their relinquishing their privacy ...others are willing sell it!** "Free-PC" has an interesting business plan – targeted advertising. It is giving away $5 million dollars worth (10,000) free 333-MHz Compaq "Presario" computers and free Internet access. But you must be willing to give up your privacy! The Free-PC constantly displays advertising banners around the edges of the screen whenever the computer is on.

People getting the free computer must provide the company with all sorts of personal preference and demographic information so that the advertising received can be automatically tailored to them. Free-PC plans to recoup the $500 cost through fees charged advertisers.

You also must agree to allow Free-PC to monitor your Web surfing habits. Privacy concerns notwithstanding, the idea is really a huge hit. Four days after Free-PC began accepting applications, it had more than half a million requests. If the business plan works, Free-PC plans to distribute up to a million free computers by the end of the year. <http://www.FreePC.com>

■ **PC "Clones" to be promoted in Japan.** Softbank Corp., a huge Japanese high-tech company, will be offering "No Name" PCs to Japanese consumers at lower costs. They will offer three machines (from $800 to $1895) which will be sold through distributors. Service will be provided by Ricoh at $66 per year. Non-branded computers are only 10 percent of Japan's PC market against a 30 to 40 percent share in the U.S.

■ **Look for more PC makers to become Internet Service Providers** – In a report entitled "PC Hardware Outlook", researcher, Hambrecht & Quist predicts personal computer sales will grow about 14 percent in 1999 and 2000 – down from 15% in 1998.

The report says that "...vendors will need to inaugurate subscription services to keep customers on the hook. The leading PC makers have a very valuable asset -- the real estate on the desktop screen of a PC since they control what users see on their screen when they first turn on their PCs."

Toward that end, Gateway has begun bundled a one-year Internet access package with its consumer PCs . Gateway also formed a relationship with Yahoo! Inc. to develop a "Gateway My Yahoo!" customized start page for subscribers of its Internet service, Check out: <http://www.gateway.net>

■ **One computer maker that isn't doing well is Packard-Bell.** Now 88% owned by Japan's NEC Corp., Packard-Bell lost $500 million last year. Brutal low-cost PC competition is given as the reason. The firm is planning to develop new specialized products – such as e-mail devices and appliances for surfing the Internet.

■ **What do you do with a computer when it's no longer useful?** The average working life of a PC before obsolescence is only three years, sometimes two. Many charities no longer accept very old computers because little software is made for them anymore. While most hams can easily find a $20 XT system at a flea market and make it do something worthwhile, most people simply heave old computers into the trash. One prediction states that up to 50 million PCs will end up in dumpsters within six years. And that's just in America. (Even supercomputers become obsolete. The average model lasts only five years before another model outperforms it.)

■ **Microsoft just announced the availability of the final release version of their Internet Explorer-5 browser.** Users can order the IE5 on CD online at: <www.microsoft.com/windows/ie/> for $6.95 or by calling 1-800-485-2048. The CD will be shipped on March 18th. The final release of Internet Explorer-5 will also be available for free download at the same Internet address beginning the same date. Additional information about the IE5 can also be found there.

■ **To pass RFI tests, laptop computers must be shielded.** But that can add weight and cost. One idea involves coating the inside of the plastic case with conductive paint. It works, but eventually may flake off.

■ **IBM is busily building the world's fastest supercomputer** for Lawrence Livermore Labs. The U.S. Department of Energy wants to use it in nuclear engineering. The RS/6000 SP will be capable of 10 trillion calculations every second.

INTERNET NEWS

■ **eBay, Inc., the immensely popular auction site on the Internet,** is making some changes. They no longer will accept ads for guns and ammunition on its Website. And Eastman Kodak Co., said it plans to license its Internet "PictureVision" photo technology to eBay to allow people who trade online to add photographs to their auction listings without scanners or additional hardware and software. eBay members simply ask Kodak photo-film processors to put the images on the Internet. eBay sellers then enter the access code of the appropriate image so that it links to their eBay listing.

■ **Merrill Lynch and Co. Inc., the nation's largest brokerage house** with nearly 5 million customers, has gotten the message. Online trading is here to stay. They will now begin offering online trading to their customers. Merrill Lynch recently paid $25 million to purchase a company with 30 top-notch financial programmers in addition to some well-written software. Full service brokers generally oppose online trading since computerized trades can bring as little as $5 per transaction.

■ **Ticket selling over the web is destined to be big business.** Movie director Steven Spielberg, director of best picture Academy Award nominee, "Saving Private Ryan," has acquired over 500,000 shares of Ticketmaster Online-CitySearch Inc., which sells tickets over the Internet.

■ **Free Internet-based Voice Mail**

Messaging has been launched by Rocket Talk. The system allows users to record, address and send their messages in their own voice through RocketTalk's central message server. The service automatically collects new messages, as well as new software upgrades every time you go online. The mail is sent and received in the background, eliminating lengthy waits as messages download. If you go offline before RocketTalk finishes downloading, it will pick up where it left off the next time you go online. If the recipient is not a RocketTalk user, your message is delivered to an e-mail address complete with a small utility for playback. For Windows 95/98/NT, requires sound card and microphone. See: <http://www.rockettalk.com>

■ **Netscape Communications Corp., now in the process of being acquired by AOL,** will offer its Instant Messenger service, which allows two people or a group to chat in real time over the Internet to America OnLine customers. AOL wants Instant Messenger to become the messaging standard across the Internet.

■ **Another new and useful Website!** We mentioned sometime ago about application programs being added to the Web. Here is a handy one ...and totally free! My Global Assistant is a very well done **Web-based Personal Assistant** allowing you to keep track of everything that is important to you. You can even get free reminders sent to your e-mail address. The service also includes an online contact book and bookmarks file so you can access your favorite Web sites no matter where you are. <http://www.myga.com> Program furnished by Navicomm Communications of Toronto, Canada. Use it!

■ According to Forester Research, **the total value of goods and services traded between companies over the Internet will hit US$327 billion by the year 2020.**

■ **More than one million customers now communicate electronically** with FedEx while 5,000 external websites maintain links to FedEx website.

■ **Surf or check your mail while you wait for a plane!** Internet Service Provider, "Get2Net" has started installing Internet terminals at US airports. So far the company has installed about 100 Internet access booths at several airports including New York's LaGuardia and John F. Kennedy airports, Chicago's O'Hare and New Jersey's Newark airport. The booths provide fortified PCs and a notebook port. The cost is 10¢ per minute using Netscape Navigator 4.

■ **Something for nothing (or nearly nothing) department.** Most sites get their Web space from an Internet Service Provider. Many sites are now offering free space in exchange for allowing advertising on the site. You can get free web hosting from Geocities, Angelfire, AcmeCity, Xoom, and Go.com – free for the asking. Most require a banner ad on your site and fairly steady traffic.

Geocities also has an option that by paying $5 a month, you can get more space, 25 mb. (Their 11 mb site plan wioth advertising is totally free.) Disney's "Go.com" offers unlimited space. Neither has an advertising requirement. Check out: <http://www.geocities.com>, <http://www.angelfire.com>, <http://www.acmecity.com>, <http://www.xoom.com> and <http://www.go.com>

■ **Is Amazon.com Inc., the Internet book, music and video seller moving into online drug sales?** They have taken a 40 percent stake in closely held Drugstore.com.

WASHINGTON WHISPERS

■ **Taxing Internet online commerce is a certainty that is coming.** There will be just too much money changing hands online for there not to be. The only questions are how and when. Right they can't even decide on the makeup of the commission which is to provide guidance to Congress. They were supposed to begin work three months ago. The panel's work will pit Main Street storekeepers who collect and pay taxes against cyberspace entrepreneurs who don't.

According to the law which established it, the Advisory Commission on Electronic Commerce must have eight members from private industry, eight from state and local governments - including at least one from a state with no sales tax - plus the commerce and treasury secretaries and the U.S. trade representative. The same law also imposed a three year moratorium on new Internet taxes which ios due to expire 2001.

But whoever appointed the commission members bungled the job. Right now it has the three federal officials plus nine members from industry and seven from state and local governments, none from a state with no sales tax. State and local governments are not happy and have vowed that there will be no meetings until the difference is cleared up. So far, none of the private industry appointees has volunteered to step aside.

■ **Pirate Radio "Vibes 89.1 FM" shut down.** Working with the US Marshals Service and the United States Attorney, the FCC seized radio equipment used in the operation of an unlicensed FM radio station in Oakland Park, Florida on 15th January 1999. The seizure of the equipment followed numerous FCC warnings to the operator about the penalties for unauthorized broadcasting, and attempts by FCC agents to have the station voluntarily discontinue transmission. Unlicensed operation of a broadcast radio transmitter(AM, FM, International Short Wave and TV) is a federal crime. Violators are subject to a $100,000 fine, imprisonment up to one year (or both) for a first offense. By court order, the equipment used is subject to seizure and forfeiture.

■ **If you thought that "911" was the universal national emergency telephone number, you would be wrong.** Some areas use different numbers ranging from "77" for the Pennsylvania State Police to the regular 7-digit telephone number to reach help. This makes it difficult for travelers who are used to the "911" number. The House of Representatives has now passed a bill which requires the FCC to enact rules which would require all cities and states to adopt the "911" emergency telephone number for standard telephone and cellular systems. H.R.-328 also requires wireless carriers to provide the mobile phone user's location to authorities ...and also to others if authorized by the subscriber.

■ Internet fraud complaints are us 600 percent. **As a result, the Federal Trade Commission is in the process of launching a 24-hour Internet fraud-detecting group.**

The top 10 complaints by callers to *Internet Fraud Watch* are, in order of frequency: auctions, general merchandise sales, computer equipment and software, Internet services, work-at-home offers, business opportunities, marketing schemes, credit card offers, advance fee loans and employment offers.

Be particularly suspicious of peddlers that ask for cash, checks or money orders only. Credit card sales can be disputed, set aside and investigated.

HOUSE PASSES NEW EAVESDROPPING BILL

The cellular telephone industry celebrated an important victory against scanner users on February 25, when the House of Representatives adopted the toughest anti-eavesdropping legislation yet. The "Wireless Privacy Enhancement Act of 1999" (HR-514), sponsored by Rep. Heather Wilson (R-NM), passed by a vote of 403-3.

"Eavesdropping is not a victimless crime," said Cellular Telecommunications Industry Association president Thomas Wheeler. "The bipartisan support for this measure demonstrates broad concern for protecting wireless phone users against eavesdropping."

Like previous attempts at suppressing scanner use, the bill directs the FCC to do what it already has done in a number of regulatory proceedings. The bill requires the FCC to deny equipment authorization to scanners capable of receiving transmissions in the cellular and Personal Communications Services (PCS).

As a result of previous legislation, the FCC already denies authorization to such scanners or to those "capable of readily being altered" to receive prohibited signals, although Congress has been pointedly critical of poor FCC enforcement in this area.

The bill bans "scanners equipped with decoders" that convert digital cellular or PCS signals to analog signals; and adds "protected" SMR (specialized mobile radio) services to the list of prohibited signals.

SMR services are the dispatch and mobile phone operations in the 800 MHz band. They now compete with cellular and PCS in the consumer pocket phone market. Also banned would be devices that enable scanners to convert paging transmissions to alphanumeric text. Designs and software for such devices have been widely available for years.

The bill prohibits modification of scanners in a manner that would cause the equipment to fail to comply with FCC regulations, including the ban on eavesdropping. Such modification is already illegal because authority to operate a Commission-authorized device only applies if the device is not altered from the version the FCC authorized.

The bill says the FCC "may adopt" regulations necessary to enhance privacy on frequencies shared between commercial mobile radio services and public safety radio systems. It directs the FCC to consider requiring warning labels on scanners, an idea the FCC once considered and rejected.

Biggest changes

Under current law, unauthorized interception of radio signals can be permissible if the content is not disclosed. The bill would prohibit the unauthorized interception of communications even if the content is not disclosed.

This is one of the biggest changes to eavesdropping laws in years, and could hit the various scanner and shortwave hobby publications that print digests of message traffic. Another important change is that the FCC would be empowered to require "potting" (encasing in glue) of scanner circuits, or other methods that would prevent modifications.

The bill directs the FCC to investigate violations of the eavesdropping laws and to "impose forfeiture penalties upon conclusion of the Commission's investigation."

VIENNA HAM DEALER SENTENCED FOR FRAUD

The 67-year-old owner of a now-defunct government electronics equipment contractor and ham radio distributor in Vienna, Virginia has been sentenced to four months in jail and four months of home detention for conspiring to submit false invoices to the Drug Enforcement Administration in 1995.

Richard Fleet Robinson, (K4EIH, Advanced Class, of Fairfax, VA) who owned Electronic Equipment Bank, also was ordered by Judge Leonie M. Brinkema to pay $52,100 in fines and restitution. Robinson pleaded guilty in December to one count of conspiracy to submit false invoices to DEA in August 1995. The sentencing occurred Friday, February 19.

Robinson conspired with Robert Burchell, a telecommunications specialist at DEA's Northern Virginia headquarters, federal authorities said in documents filed in U.S. District Court in Alexandria. Burchell pleaded guilty last summer to embezzlement and money laundering and was sentenced to four years in prison.

Robinson was indicted on charges he submitted two bogus invoices totaling $50,000 to DEA for batteries used in DEA radios when, in fact, no such batteries were delivered, court documents state.

After Robinson received payment for the nonexistent batteries and kept an estimated $12,000 for his efforts, authorities said in the court documents, Burchell instructed him to pay the rest of the money to third parties. Authorities said the third party payments actually were for Burchell's personal benefit. *[Fairfax Journal, Feb.22]*

PALESTINE DX OPERATION RACKING UP QSOs

The new prefix E4 assigned to Palestine was heard on the air for the first time on February 16 at 1200 UTC. shortly after the call sign was released to the Palestine Wireless Society by the Palestinian Ministry of Posts and Telecommunications (MPT).

During its first 48 hours, E44DX racked up more than 10,000 contacts. A group including U.S. amateurs operated from the Palestine Hotel in Gaza on 15, 20 and 80 meters. SSB operations are centered on 21.3 and 14.2 MHz, split-frequency. CW is being used on various frequencies on 80, also split. Their operating frequency is being distributed to DXers by packet.

One of the E4 operators was heard calling for stateside contacts by call sign districts. But there were complaints that E44DX was favoring the the 6's and 7's – possibly because of west coast sponsorship.

The international team is being led by well-known DXer Martti Lane, OH2BH. The team also got to meet Palestinian leader Yasser Arafat, who expressed his support for ham radio and sent his regards to the worldwide amateur community. QSLs may be sent via OH2BN.

Intense jamming was commonplace. The "DX cops" – operators who think they rule the ham bands – were out in full force sending "lid, lid, lid." Even though E44DX was working "split" frequency, many operators called on the transmit frequency adding to the bedlam.

"Where's Riley Hollingsworth when we need him?" could be heard. One DX operator even came on 14195 and proceeded to deliver a lengthy monologue about how terrible all the jamming was, and how DXers should all call the FCC, and then gave Hollingsworth's call and telephone number and suggested that everyone call him to alert him to the situation. During this "announcement," E44DX was entirely jammed out. *(Thanks: KB2VXA , and many others)*

PLUG PULLED ON GRIZZLY PEAK REPEATERS

FCC says operational misconduct will not be tolerated!

In a case developed by the ARRL's Amateur Auxiliary, the FCC has ordered San Francisco Bay area's Grizzly Peak 2-meter, 1¼-meter and 70-cm repeaters off the air for at least the next 4 months.

The repeater operator suspension is based on Part 97 Rule § 97.27 and Sec. 316 of the Communications Act which permits the Commission to modify a station license, either for a limited time or for the duration of the license term, if it determines that such action will promote the public interest and promote fuller compliance with the rules.

Part §97.7 requires that every Amateur station have a control operator who is required by §97.105 to "...ensure the immediate proper operation of the station, regardless of the type of control."

According to the FCC, the Grizzly Peak control operators have for almost a year allegedly not only permitted, but encouraged use of the repeater by unlicensed operators; rebroadcast of cordless telephone calls, playing of music ...and profane and obscene language on the amateur airwaves. There have even been cases of extended QSO's between the control operator and unlicensed stations ...all in violation of the rules.

The allegations were previously brought to the attention of the VHF/UHF repeater system licensee, Bruce Wachtell K7IJ of Carson City, Nevada, but he did nothing about it. The FCC ordered the system shut down as of February 28th charging that the control operator assigned, Blake B. Jenkins N6YSA of Berkeley, California has not only invited unlicensed operators to use the repeater but has encouraged jamming and does not require operators to comply with the rules. The Commission is handling the Jenkins case – and the conduct of secondary control operator, Steven R. Rossi KE6LNH of Novato, California – as a separate matter.

In a February 25th letter to Wachtell, FCC's Riley Hollingsworth said "The operation of the K7IJ repeater system in this manner may reflect adversely upon your qualifications to hold a Commission license." Wachtell was ordered to furnish the FCC with a list of names, addresses and telephone numbers of all control operators for the K7IJ repeater system within 30 days.

Hollingsworth also wants to know the dates these amateurs were control operators including any monetary compensation, the instructions given them regarding repeater control, whether Wachtell himself ever was the control operator during 1998 and a list of complaints received regarding the operation of the Grizzly Peak repeaters. "Continued operation of the K7IJ repeater system during the modification period will jeopardize your license ...and subject you to a monetary penalty," Hollingsworth warned.

FCC acts against unlawful repeater operators

Separately, Hollingsworth has set aside the recent license grant of Jim Walker KF6VAA and Michael J. Nichols KF6UAS – both of Oakland – and Eric B. Shuler KF6UJU (including his vanity call sign: KF6BMG) of Newark, California for operating on the Grizzly Peak repeater systems prior to their licenses being granted. Walker and Nichols have been given 30 days to respond to the allegation. Neither now has authority to operate Amateur radio transmitting equipment on any band.

The FCC also set aside the recent license upgrade of Gordon B. Reese, III, KF6QKA of Oakland and reversed his operating privileges to Technician. Reese is charged with profanity, obscenity and broadcasting cordless telephone conversations on the Grizzly Peak repeater system. Hollingworth said Reese's license is in jeopardy and ordered him to respond to the accusations within 30 days.

An official citation was sent out to Timmy O. Sheen, Jr. N6MZA of Sacramento for his alleged repeater jamming, malicious interference and various one-way broadcasting episodes including those of cordless telephone conversations.

And Mervyn Ehambrave of East Palo Alto, California was notified that the FCC had evidence that he was operating on VHF/U&HF repeaters systems in his area without a license as recently as February 23rd. Both Sheen – whose license is in jeopardy – and Ehambrave were instructed to contact the FCC immediately.

Hollingsworth said "...any further incidents of unlicensed operation will result in enforcement action being taken..." including possible fine, imprisonment and seizure of your radio transmitting equipment."